What is claimed is:

1. A device for performing an assay, which device comprises a substrate having interconnected channels, said channels opening out on a surface for sample application, the channels in at least one area of the surface for sample application being provided with a first binding substance capable of binding to an analyte, wherein the substrate is an electrochemically manufactured metal oxide membrane and the first binding substance is within the interconnected channels in the substrate.

2. The device of claim 1, wherein the metal oxide membrane is comprised of aluminium oxide.

3. The device of claim 1, wherein the first binding substance is covalently bound to the substrate.

4. The device of claim 1, wherein the first binding substance is selected from the group consisting of an oligopeptide, a polypeptide, an oligonucleotide, a polynucleotide, a hapten, and a ligand for a receptor.

5. The device of claim 4, wherein the first binding substance is an oligopeptide.

6. The device of claim 5, wherein the oligopeptide comprises an immunogenic epitope.

7. The device of claim 5, wherein the oligopeptide comprises a portion of an HIV protein.

8. The device of claim 4, wherein the first binding substance is a polypeptide.

9. The device of claim 8, wherein the first binding substance is an antibody or an enzyme.

10. The device of claim 4, wherein the first binding substance is an oligonucleotide.

11. The device of claim 10, wherein the first binding substance comprises a portion of an HIV genome.

12. A method of manufacturing the device of claim 1, wherein the

first binding substance is synthesised in situ.

13. The method of claim 12, wherein the in situ synthesis is done either chemically or enzymatically.

14. The method or claim 12, wherein a compound for synthesising the first binding substance is applied to a particular area using ink-jet technology.

15. The method of claim 14, wherein the compound is applied using electrostatic attraction.

16. A method of manufacturing the device of claim 1, wherein the first binding substance is applied to a particular area using ink-jet technology.

17. The method of claim 16, wherein the first binding substance is applied using electrostatic attraction.

18. A kit comprising (a) the device of claim 1, and (b) a detection means for determining whether binding has occurred between the first binding substance and the analyte.

19. The kit of claim 18 wherein the detection means comprises a second binding substance provided with a label.

20. The kit of claim 19, wherein the label is capable of inducing a colored or infrared or ultraviolet reaction product, or capable of bio- or chemo- or photoluminescence.

21. The kit of claim 20, wherein the detection means uses an enzymatic reaction.

22. A method for the detection of an analyte in a sample, the method comprising the steps of

a) contacting the sample with a device of claim 1,

b) allowing binding to take place between the first binding substance and the analyte to be detected, and

c) detecting whether binding has occurred between the first binding substance and the analyte.

23. The method of claim 22, further comprising repeating step a) and b) at least once before performing step c).

24. The method of claim 23, wherein steps a) and b) are performed by passing the sample through the membrane in one direction perpendicular to the surface of the membrane, and the repeating of steps a) and b) are performed by passing the sample through the membrane in the opposite direction.

25. The method of claim 22, wherein the analyte comprises a polynucleotide or oligonucleotide.

26. The method of claim 25, wherein the polynucleotide comprises a portion of an HIV genome.

27. The method of claim 25, wherein the detection step comprises the use of a molecular beacon.

28. The method of claim 25, further comprising using the results of step c) to determine sequence information of the polynucleotide or oligonucleotide.

29. The method of claim 22, wherein the analyte comprises a polypeptide.

30. The method of claim 29, wherein the polypeptide is from an HIV.

31. A device for performing a chemical synthesis, which device comprises a substrate having interconnected channels, said channels opening out on a surface, the channels in at least one area of the surface for reagent application being provided with a first reacting substance capable of reacting with a second reacting substance, wherein the substrate is an electrochemically manufactured metal oxide membrane and the first reacting substance is within the interconnected channels in the substrate.

32. The device of claim 31, wherein the first reacting substance is a polymer.

33. The device of claim 31, wherein the first reacting substance is covalently bound to the substrate.

34. The device of claim 32, wherein the polymer is capable of covalently binding to an organic molecule of less than 1000 Dalton.

35. The device of claim 32, wherein the polymer is capable of covalently binding to a modified amino acid useful for oligopeptide synthesis.

36. The device of claim 32, wherein the polymer is capable of covalently binding to a modified nucleotide useful for oligonucleotide synthesis.

37. A method of manufacturing the device of claim 31, wherein the first reacting substance is applied to a particular area using ink-jet technology.

38. A method of synthesizing an oligopeptide, the method comprising

(a) contact the device of claim 35 with a protected amino acid under conditions and for a time sufficient for the protected amino acid to covalently bind to the polymer;

(b) treat the device to remove the protecting group from the protected amino acid to form a device comprising a polymer covalently bound to a first amino acid; and

(c) contact the device comprising a polymer covalently bound to a first amino acid with a second protected amino acid under conditions and for a time sufficient for the second protected amino acid to form a peptide bond with the first amino acid.

39. A method of synthesizing an oligonucleotide, the method comprising

(a) contact the device of claim 36 with a protected nucleotide under conditions and for a time sufficient for the protected nucleotide to covalently bind to the polymer;

(b) treat the device to remove the protecting group from the protected nucleotide to form a device comprising a polymer covalently bond to a first nucleotide; and

(c) contact the device comprising a polymer covalently bond to a first nucleotide with a second protected nucleotide under conditions and for a time sufficient for the second protected nucleotide to form a phosphodiester bond with the first nucleotide.

40. The method of claim 39, wherein the oligonucleotide is a oligoribonucleotide.

41. The method of claim 39, wherein the oligonucleotide is a oligodeoxyribonucleotide.

42. A method of performing a chemical synthesis to create a desired chemical, the method comprising

a) contacting a device comprising a first reacting substance with a second reacting substance, wherein the device comprises a substrate having interconnected channels, said channels opening out on a surface, the channels in at least one area of the surface for reagent application being provided with the first reacting substance capable of reacting with the second reacting substance to covalently attach the second reacting substance to the first reacting substance, wherein the substrate is an electrochemically manufactured metal oxide membrane and the first reacting substance is within the interconnected channels in the substrate;

b) incubating the device under conditions and for a time sufficient for the first reacting substance to react with the second reacting substance;

c) repeating steps a) and b) to covalently attach a third reacting substance to the first and second reacting substance;

d) repeating step c) if necessary with a fourth reacting substance and subsequent reacting substances until the chemical synthesis is complete and the desired chemical is within the interconnected channels in the substrate; and

e) cleaving the desired chemical from the interconnected channels in the substrate.

43. The method of claim 42, wherein the desired chemical is an oligopeptide.

44. The method of claim 42, wherein the desired chemical is an oligonucleotide.